Shortname: OMAEROG
Longname: OMI/Aura Multi-wavelength Aerosol Optical Depth and Single Scattering Albedo Daily L2 Global 0.25x0.25 deg Lat/Lon Grid
PFS Version: 1.1.0
Date: 2011 July 14
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PGE Version: 1.1.0
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Description: >

 This document specifies the format of the Ozone Monitoring Instrument (OMI)
 OMAERO product, which is the daily Level 2G (L2G) gridded data product that
 corresponds to the OMAERO product. The latter is the Dutch-Finnish aerosol
 optical thickness and single scattering albedo orbital Level 2 (L2) swath
 data product (Reference 1).

 The L2G product contains 24 UTC hours of L2 product subsetted onto a
 longitude-latitude grid.

 An OMI L2G day is defined to be the 24 hours that lie between UTC times of
 0 hours, 0 minutes, 0 seconds and 23 hours, 59 minutes, 59.999999 seconds.

 The L2G product contains the data for all L2 "scenes" that

1) have observation times that lie within the L2G day in question,
2) have centers that lie within the L2G grid cell in question, and
3) are "good".

A "good" OMAERO L2 scene is defined as one that has
i) a solar zenith angle that is less than or equal to 88.0 degrees, and
ii) a UV aerosol index that is not equal to the missing value.

The adopted L2G grid is a 0.25-degree by 0.25-degree grid in longitude and
latitude. The dimensions of this grid are 1440 by 720. The origin of the
grid is at lower left. That is, the grid cell at coordinates (1, 1)
is centered at (longitude = -179.875 , latitude = -89.875),
and the grid cell at coordinates (1440, 720)
is centered at (longitude = 179.875 , latitude = 89.875).

The adopted L2G grid is consistent with the document entitled "Definition
of OMI Grids for Level 3 and Level 4 Data Products" by J.P. Veefkind et al.
(Reference 2).

The L2G product currently excludes L2 data collected in spatial and spectral
zoom modes.

Each "good" L2 scene is mapped onto only one L2G grid cell.

The number of L2 scenes that are mapped onto a given L2G grid cell can range
from 0 to 12, and the corresponding data are stored in an additional dimension
of the grid.

The L2 data are not averaged or weighted in any way in the L2G product.

The product is stored as one HDF-EOS 5 grid file, and has a size of 87 MB.

The format of the L2G product files is consistent with the document entitled
"HDF-EOS Aura File Format Guidelines" by C. Craig et al. (Reference 3).

Global Metadata:

- Metadata Name: EndUTC
  Mandatory: T
  Data Type: HE5T_NATIVE_CHAR
  Number of Values: 1
  Data Source: PGE
  Description: >
   UTC at the end of the L2G granule in "YYYY-MM-DDT23:59:59.999999Z" format.

- Metadata Name: FirstLineInOrbit
  Mandatory: T
  Data Type: HE5T_NATIVE_INT
  Number of Values: 1,16
  Minimum Value: 1
  Maximum Value: 1700
  Data Source: PGE
  Description: >
   The first line number in each L2 orbit that

contributes to the L2G granule.

- Metadata Name: GranuleDay
  Mandatory: T
  Data Type: HE5T_NATIVE_INT
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 31
  Data Source: PGE
  Description: The day of the month at the start of the L2G granule.

- Metadata Name: GranuleDayOfYear
  Mandatory: T
  Data Type: HE5T_NATIVE_INT
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 366
  Data Source: PGE
  Description: The day of the year at the start of the L2G granule.

- Metadata Name: GranuleMonth
  Mandatory: T
  Data Type: HE5T_NATIVE_INT
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 12
  Data Source: PGE
  Description: The month of the year at the start of the L2G granule.

- Metadata Name: GranuleYear
  Mandatory: T
  Data Type: HE5T_NATIVE_INT
  Number of Values: 1
  Minimum Value: 2000

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   Maximum Value:     2099
   Data Source:       PGE
   Description:       The (four-digit) year at the
start of the L2G granule.

 - Metadata Name:     HDFEOSVersion
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Data Source:       HE
   Description: >
    The version of HDF-EOS 5 used in production.
Example is "HDFEOS_5.1.8".

 - Metadata Name:     InstrumentName
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            OMI
   Data Source:       PGE
   Description:       Actual is "OMI" (see Section
6.1 of Reference 3).

 - Metadata Name:     LastLineInOrbit
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1,16
   Minimum Value:     1
   Maximum Value:     1700
   Data Source:       PGE
   Description: >
    The last line number in each L2 orbit that
contributes to the L2G granule.

 - Metadata Name:     NumberOfLinesMissingGeolocation
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
```

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   Number of Values:  1,16
   Minimum Value:     1
   Maximum Value:     1700
   Data Source:       PGE
   Description: >
    The number of lines in each L2 orbit that are
missing geolocation (a.k.a.
    number of "bad" lines in each L2 file).

 - Metadata Name:     OrbitNumber
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1,16
   Minimum Value:     1
   Maximum Value:     999999
   Data Source:       L2
   Description:       The OMI orbit number for each
L2 input granule.

 - Metadata Name:     OrbitPeriod
   Mandatory:         T
   Data Type:         HE5T_NATIVE_DOUBLE
   Number of Values:  1,16
   Minimum Value:     5000.0
   Maximum Value:     7000.0
   Data Source:       PGE
   Description:       The Aura orbital period for
each L2 input granule.

 - Metadata Name:     Period
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            Daily,Weekly,Monthly
   Data Source:       PGE
   Description:       The duration of the L2G
granule.  Actual is "Daily".
```

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 - Metadata Name:     PGEVersion
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Data Source:       PCF
   Description:       Example is "0.9.36.2" (see
Appendix K of Reference 4).

 - Metadata Name:     ProcessLevel
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            2G
   Data Source:       PGE
   Description:       Actual is "2G".

 - Metadata Name:     QAPercentMissingData
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1,16
   Minimum Value:     0
   Maximum Value:     100
   Data Source:       L2
   Description: >
    The percent of Level 1B calibrated radiance data
that is missing from each
    L2 input granule.

 - Metadata Name:     QAPercentOutOfBoundsData
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1,16
   Minimum Value:     0
   Maximum Value:     100
   Data Source:       L2
   Description: >
```

The percent of data that are out of bounds in each L2 input granule.

- Metadata Name: StartUTC
  Mandatory: T
  Data Type: HE5T_NATIVE_CHAR
  Number of Values: 1
  Data Source: PGE
  Description: >
  UTC at the start of the L2G granule in "YYYY-MM-DDT00:00:00.000000Z" format.

- Metadata Name: TAI93At0zOfGranule
  Mandatory: T
  Data Type: HE5T_NATIVE_DOUBLE
  Number of Values: 1
  Minimum Value: 0.0
  Maximum Value: 1.0e+30
  Data Source: PGE
  Description: >
  The TAI93 time at 0z of the L2G granule (see Section 6.1 of Reference 3).

Grid Metadata:

- Metadata Name: GCTPProjectionCode
  Mandatory: T
  Data Type: HE5T_NATIVE_INT
  Number of Values: 1
  Minimum Value: 0
  Maximum Value: 99
  Data Source: PGE
  Description: >
  The GCTP projection code of the L2G grid. Actual is 0, which corresponds
  to the geographic projection.

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 - Metadata Name:     GridName
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            ColumnAmountAerosol
   Data Source:       PGE
   Description:       Actual is
"ColumnAmountAerosol".

 - Metadata Name:     GridOrigin
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            Center
   Data Source:       PGE
   Description: >
    The location of longitude and latitude quoted for
each L2G grid cell.
    Actual is, on average, "Center" (see Section 6.2
of Reference 3).

 - Metadata Name:     GridSpacing
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Data Source:       PGE
   Description: >
    Spacing of L2G grid (in degrees).  Actual is
"(0.25,0.25)".

 - Metadata Name:     GridSpacingUnit
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            deg
   Data Source:       PGE
   Description: >
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    Unit for GridSpacing.  Actual is "deg".

 - Metadata Name:     GridSpan
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Data Source:       PGE
   Description: >
    Span of L2G grid (in degrees).  Actual is
"(-180,180,-90,90)".

 - Metadata Name:     GridSpanUnit
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            deg
   Data Source:       PGE
   Description: >
    Unit for GridSpan.  Actual is "deg".

 - Metadata Name:     IndexMapL2toL2GnModels
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            "L2->L2G:  1->1, 2->2, 3->3, 4-
>4, 5->5"
   Data Source:       PGE
   Description: >
    Index map from L2 to L2G for nModels dimension.
    Actual is "L2->L2G:  1->1, 2->2, 3->3, 4->4, 5-
>5".

 - Metadata Name:     IndexMapL2toL2GnWavelDiagnostic
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            "L2->L2G:  1->1, 3->2, 6->3, 7-
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>4, 9->5"
   Data Source:       PGE
   Description: >
    Index map from L2 to L2G for nWavelDiagnostic
dimension.
    Actual is "L2->L2G:  1->1, 3->2, 6->3, 7->4, 9-
>5".

 - Metadata Name:     IndexMapL2toL2GnWavelnMW
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            "L2->L2G:  1->1, 4->2, 10->3,
12->4, 14->5"
   Data Source:       PGE
   Description: >
    Index map from L2 to L2G for nWavelnMW dimension.
    Actual is "L2->L2G:  1->1, 4->2, 10->3, 12->4,
14->5".

 - Metadata Name:
MaximumNumberOfCandidatesPerGridCell
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     15
   Data Source:       PGE
   Description: >
    The maximum number of L2 scenes per cell in the
L2G grid (this can be as
    large as 12).

 - Metadata Name:
MinimumNumberOfCandidatesPerGridCell
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
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   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     15
   Data Source:       PGE
   Description: >
    The minimum number of L2 scenes per cell in the
L2G grid (this is typically
    0, because empty L2G grid cells are quite
common).

 - Metadata Name:
NumberOfDuplicateScenesAcceptedIntoGrid
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     1500000
   Data Source:       PGE
   Description: >
    The number of L2 scenes accepted into L2G grid
cells that already contain
    one or more L2 scenes.

 - Metadata Name:     NumberOfEmptyGridCells
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     1036800
   Data Source:       PGE
   Description: >
    The number of cells in the L2G grid that do not
contain any L2 scenes.

 - Metadata Name:     NumberOfGridCells
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
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   Number of Values:  1
   Minimum Value:     1
   Maximum Value:     1036800
   Data Source:       PGE
   Description:       The total number of cells in
the L2G grid.

 - Metadata Name:     NumberOfLatitudesInGrid
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1
   Minimum Value:     1
   Maximum Value:     720
   Data Source:       PGE
   Description:       The number of latitude bins in
the L2G grid.

 - Metadata Name:     NumberOfLongitudesInGrid
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1
   Minimum Value:     1
   Maximum Value:     1440
   Data Source:       PGE
   Description:       The number of longitude bins in
the L2G grid.

 - Metadata Name:
NumberOfMultiplyPopulatedGridCells
   Mandatory:         T
   Data Type:         HE5T_NATIVE_INT
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     1036800
   Data Source:       PGE
   Description: >
    The number of cells in the L2G grid that contain
```

two or more L2 scenes.

 - Metadata Name: NumberOfPopulatedGridCells
   Mandatory: T
   Data Type: HE5T_NATIVE_INT
   Number of Values: 1
   Minimum Value: 0
   Maximum Value: 1036800
   Data Source: PGE
   Description: >
    The number of cells in the L2G grid that contain one or more L2 scenes.

 - Metadata Name: NumberOfScenesAcceptedIntoGrid
   Mandatory: T
   Data Type: HE5T_NATIVE_INT
   Number of Values: 1
   Minimum Value: 0
   Maximum Value: 1500000
   Data Source: PGE
   Description: The number of L2 scenes accepted into the L2G grid.

 - Metadata Name: NumberOfScenesConsideredForGrid
   Mandatory: T
   Data Type: HE5T_NATIVE_INT
   Number of Values: 1
   Minimum Value: 0
   Maximum Value: 1500000
   Data Source: PGE
   Description: The number of L2 scenes considered for the L2G grid.

 - Metadata Name: NumberOfScenesRejectedFromGrid
   Mandatory: T
   Data Type: HE5T_NATIVE_INT
   Number of Values: 1

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   Minimum Value:     0
   Maximum Value:     1500000
   Data Source:       PGE
   Description:       The number of L2 scenes
rejected from the L2G grid.

 - Metadata Name:     Projection
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            Geographic
   Data Source:       PGE
   Description: >
    The map projection of the L2G grid.  Actual is
"Geographic" (see
    Section 6.2 of Reference 3).

 - Metadata Name:     WavelDiagnostic
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            "342.5, 388.0, 442.0, 463.0,
483.5"
   Data Source:       PGE
   Description: >
    The diagnostic wavelengths in nm.  Actual is
"342.5, 388.0, 442.0, 463.0,
    483.5".

 - Metadata Name:     WavelnMW
   Mandatory:         T
   Data Type:         HE5T_NATIVE_CHAR
   Number of Values:  1
   Valids:            "342.5, 388.0, 442.0, 463.0,
483.5"
   Data Source:       PGE
   Description: >
```

The MW wavelengths in nm. Actual is "342.5, 388.0, 442.0, 463.0, 483.5".

Grid Dimensions:

- Dimension Name: nCandidate
  Data Type: HE5T_NATIVE_INT
  Dimension Type: FIXED
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 15
  Data Source: PGE
  Description: >
  The L2-candidate-scenes dimension of the L2G grid. The size of this
  dimension is currently set at 15.

- Dimension Name: nModels
  Data Type: HE5T_NATIVE_INT
  Dimension Type: FIXED
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 10
  Data Source: PGE
  Description: >
  The number of models dimension of the L2G grid. The size of this
  dimension is currently set at 5.

- Dimension Name: nWavelnMW
  Data Type: HE5T_NATIVE_INT
  Dimension Type: FIXED
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 14
  Data Source: PGE
  Description: >

The number of wavelengths in moving window dimension of the L2G grid.
The size of this dimension is currently set at 5.

- Dimension Name: nWavelDiagnostic
  Data Type: HE5T_NATIVE_INT
  Dimension Type: FIXED
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 9
  Data Source: PGE
  Description: >
The number of diagnostic wavelengths dimension of the L2G grid. The
size of this dimension is currently set at 5.

- Dimension Name: XDim
  Data Type: HE5T_NATIVE_INT
  Dimension Type: FIXED
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 1440
  Data Source: PGE
  Description: >
The longitudes dimension of the L2G grid. There are currently 1440
0.25-degree-wide bins between longitudes -180.0 and 180.0 degrees.

- Dimension Name: YDim
  Data Type: HE5T_NATIVE_INT
  Dimension Type: FIXED
  Number of Values: 1
  Minimum Value: 1
  Maximum Value: 720
  Data Source: PGE
  Description: >

The latitudes dimension of the L2G grid. There are currently 720
0.25-degree-wide bins between latitudes -90.0 and 90.0 degrees.

Geolocation Fields:

- Field Name: GroundPixelQualityFlags
  Data Type: HE5T_NATIVE_UINT16
  Dimensions: nCandidate,YDim,XDim
  Minimum Value: 0
  Maximum Value: 65534
  Missing Value: 65535
  Offset: 0.0
  Scale Factor: 1.0
  Units: NoUnits
  Data Source: L2
  Title: Groundpixel quality flags
  Unique Field Definition: OMI-Specific
  Description: >
  The ground pixel quality flags for each L2 candidate scene in each L2G grid
  cell:

  Bits 0 to 3 together contain the land/water flags:
    0 - shallow ocean
    1 - land
    2 - shallow inland water
    3 - ocean coastline/lake shoreline
    4 - ephemeral (intermittent) water
    5 - deep inland water
    6 - continental shelf ocean
    7 - deep ocean
    8-14 - not used
    15 - error flag for land/water

Bits 4 to 6 are flags that are set to 0 for FALSE, or 1 for TRUE:

Bit 4 - sun glint possibility flag
Bit 5 - solar eclipse possibility flag
Bit 6 - geolocation error flag

Bit 7 is reserved for future use (currently set to 0).

Bits 8 to 14 together contain the snow/ice flags (based on NISE):

0 - snow-free land
1-100 - sea ice concentration (percent)
101 - permanent ice (Greenland, Antarctica)
102 - not used
103 - dry snow
104 - ocean (NISE-255)
105-123 - reserved for future use
124 - mixed pixels at coastline (NISE-252)
125 - suspect ice value (NISE-253)
126 - corners undefined (NISE-254)
127 - error

Bit 15 - NISE nearest neighbor filling flag.
(See Section 6.2 of Reference 5 for more details.)

- Field Name: Latitude
  Data Type: HE5T_NATIVE_FLOAT
  Dimensions: nCandidate,YDim,XDim
  Minimum Value: -90.0
  Maximum Value: 90.0
  Missing Value: -1.2676506e+30
  Offset: 0.0
  Scale Factor: 1.0
  Units: deg

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   Data Source:              L2
   Title:                    Latitude of the center
of the groundpixel
   Unique Field Definition:  Aura-Shared
   Description: >
    The geodetic latitude (in degrees) on the ground
at the center of each L2
    candidate scene in each L2G grid cell.

 - Field Name:               LineNumber
   Data Type:                HE5T_NATIVE_INT
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            1
   Maximum Value:            1700
   Missing Value:            -2000000000
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    NoUnits
   Data Source:              L2
   Title:                    Line Number of Candidate
Scene
   Unique Field Definition:  OMI-Specific
   Description: >
    The line number for each L2 candidate scene in
each L2G grid cell.

 - Field Name:               Longitude
   Data Type:                HE5T_NATIVE_FLOAT
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            -180.0
   Maximum Value:            180.0
   Missing Value:            -1.2676506e+30
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    deg
   Data Source:              L2
   Title:                    Longitude of the center
```

```
of the groundpixel
   Unique Field Definition:  Aura-Shared
   Description: >
    The geodetic longitude (in degrees) on the ground
at the center of each L2
    candidate scene in each L2G grid cell.

 - Field Name:                NumberOfCandidateScenes
   Data Type:                 HE5T_NATIVE_INT
   Dimensions:                YDim,XDim
   Minimum Value:             0
   Maximum Value:             15
   Missing Value:             0
   Offset:                    0.0
   Scale Factor:              1.0
   Units:                     NoUnits
   Data Source:               PGE
   Title:                     Number of Candidate
Scenes
   Unique Field Definition:  OMI-Specific
   Description: >
    The number of L2 candidate scenes in each L2G
grid cell.

 - Field Name:                OrbitNumber
   Data Type:                 HE5T_NATIVE_INT
   Dimensions:                nCandidate,YDim,XDim
   Minimum Value:             1
   Maximum Value:             999999
   Missing Value:             -2000000000
   Offset:                    0.0
   Scale Factor:              1.0
   Units:                     NoUnits
   Data Source:               L2
   Title:                     Orbit Number of
Candidate Scene
   Unique Field Definition:  OMI-Specific
```

Description: >
The orbit number for each L2 candidate scene in each L2G grid cell.

- Field Name: PathLength
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nCandidate,YDim,XDim
Minimum Value: 2.0
Maximum Value: 100.0
Missing Value: 1.2676506e+30
Offset: 0.0
Scale Factor: 1.0
Units: NoUnits
Data Source: PGE
Title: Path Length
Unique Field Definition: OMI-Specific
Description: >
The path length [= sec(solar zenith angle) + sec(viewing zenith angle)] for
each L2 candidate scene in each L2G grid cell.

- Field Name: SceneNumber
Data Type: HE5T_NATIVE_INT
Dimensions: nCandidate,YDim,XDim
Minimum Value: 1
Maximum Value: 60
Missing Value: -2000000000
Offset: 0.0
Scale Factor: 1.0
Units: NoUnits
Data Source: L2
Title: Scene Number of Candidate Scene
Unique Field Definition: OMI-Specific
Description: >
The cross-track ground-pixel number for each L2 candidate scene in each L2G

grid cell.

- Field Name: SolarAzimuthAngle
  Data Type: HE5T_NATIVE_FLOAT
  Dimensions: nCandidate,YDim,XDim
  Minimum Value: -180.0
  Maximum Value: 180.0
  Missing Value: -1.2676506e+30
  Offset: 0.0
  Scale Factor: 1.0
  Units: deg
  Data Source: L2
  Title: >
  Solar azimuth angle at WGS84 ellipsoid for center co-ordinate of the ground
  pixel, defined East-of-North
  Unique Field Definition: OMI-TES-Shared
  Description: >
  The solar azimuth angle (in degrees) defined East-of-North on the ground at
  the center of each L2 candidate scene in each L2G grid cell.

- Field Name: SolarZenithAngle
  Data Type: HE5T_NATIVE_FLOAT
  Dimensions: nCandidate,YDim,XDim
  Minimum Value: 0.0
  Maximum Value: 180.0
  Missing Value: -1.2676506e+30
  Offset: 0.0
  Scale Factor: 1.0
  Units: deg
  Data Source: L2
  Title: >
  Solar zenith angle at WGS84 ellipsoid for center co-ordinate of the ground
  pixel

```
   Unique Field Definition:  Aura-Shared
   Description: >
    The solar zenith angle (in degrees) on the ground
at the center of each L2
    candidate scene in each L2G grid cell.

 - Field Name:               SpacecraftAltitude
   Data Type:                HE5T_NATIVE_FLOAT
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            0.0
   Maximum Value:            1.0e+06
   Missing Value:            -1.2676506e+30
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    m
   Data Source:              L2
   Title:                    Altitude above WGS84
ellipsoid
   Unique Field Definition:  HIRDLS-OMI-TES-Shared
   Description: >
    Spacecraft altitude (in m) for each L2 candidate
scene in each L2G grid
    cell.

 - Field Name:               SpacecraftLatitude
   Data Type:                HE5T_NATIVE_FLOAT
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            -90.0
   Maximum Value:            90.0
   Missing Value:            -1.2676506e+30
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    deg
   Data Source:              L2
   Title:                    Geodetic Latitude above
WGS84 ellipsoid
   Unique Field Definition:  HIRDLS-OMI-TES-Shared
```

```
   Description: >
    Spacecraft latitude (in degrees) for each L2
candidate scene in each L2G
    grid cell.

 - Field Name:                SpacecraftLongitude
   Data Type:                 HE5T_NATIVE_FLOAT
   Dimensions:                nCandidate,YDim,XDim
   Minimum Value:             -180.0
   Maximum Value:             180.0
   Missing Value:             -1.2676506e+30
   Offset:                    0.0
   Scale Factor:              1.0
   Units:                     deg
   Data Source:               L2
   Title:                     Geodetic Longitude above
WGS84 ellipsoid
   Unique Field Definition:  HIRDLS-OMI-TES-Shared
   Description: >
    Spacecraft longitude (in degrees) for each L2
candidate scene in each L2G
    grid cell.

 - Field Name:                TerrainHeight
   Data Type:                 HE5T_NATIVE_INT16
   Dimensions:                nCandidate,YDim,XDim
   Minimum Value:             -200
   Maximum Value:             10000
   Missing Value:             -32767
   Offset:                    0.0
   Scale Factor:              1.0
   Units:                     m
   Data Source:               L2
   Title: >
    Terrain height at for center co-ordinate of the
ground pixel
   Unique Field Definition:  OMI-Specific
```

```
   Description: >
    The terrain height (in meters) at the center of
each L2 candidate scene in
    each L2G grid cell.

 - Field Name:                Time
   Data Type:                 HE5T_NATIVE_DOUBLE
   Dimensions:                nCandidate,YDim,XDim
   Minimum Value:             -5.0e+09
   Maximum Value:             1.0e+10
   Missing Value:             -1.2676506002282294e+30
   Offset:                    0.0
   Scale Factor:              1.0
   Units:                     s
   Data Source:               L2
   Title:                     Time in TAI-93 format
   Unique Field Definition:   Aura-Shared
   Description: >
    The TAI93 time (in seconds) for each L2 candidate
scene in each L2G grid
    cell.

 - Field Name:                ViewingAzimuthAngle
   Data Type:                 HE5T_NATIVE_FLOAT
   Dimensions:                nCandidate,YDim,XDim
   Minimum Value:             -180.0
   Maximum Value:             180.0
   Missing Value:             -1.2676506e+30
   Offset:                    0.0
   Scale Factor:              1.0
   Units:                     deg
   Data Source:               L2
   Title: >
    Viewing azimuth angle at WGS84 ellipsoid for
center co-ordinate of the
    ground pixel, defined East-of-North
   Unique Field Definition:   OMI-Specific
```

Description: >
The viewing azimuth angle (in degrees) defined East-of-North on the ground at
the center of each L2 candidate scene in each L2G grid cell.

- Field Name: ViewingZenithAngle
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nCandidate,YDim,XDim
Minimum Value: 0.0
Maximum Value: 180.0
Missing Value: -1.2676506e+30
Offset: 0.0
Scale Factor: 1.0
Units: deg
Data Source: L2
Title: >
Viewing zenith angle at WGS84 ellipsoid for center co-ordinate of the
ground pixel
Unique Field Definition: OMI-Specific
Description: >
The viewing zenith angle (in degrees) on the ground at the center of each L2
candidate scene in each L2G grid cell.

Data Fields:

- Field Name: AerosolModelMW
Data Type: HE5T_NATIVE_UINT16
Dimensions: nCandidate,YDim,XDim
Minimum Value: 0
Maximum Value: 65534
Missing Value: 65535
Offset: 0.0
Scale Factor: 1.0
Units: NoUnits

Data Source: L2
Title: >
Aerosol model indicator for best fit aerosol model derived with the
Multi-Wavelength method
Unique Field Definition: OMI-Specific
Description: >
The aerosol model indicator for best fit aerosol model derived with the
multi-wavelength method for each L2 candidate scene in each L2G grid cell.

- Field Name: AerosolModelsPassedThreshold
Data Type: HE5T_NATIVE_UINT16
Dimensions: nCandidate,nModels,YDim,XDim
Minimum Value: 0
Maximum Value: 65534
Missing Value: 65535
Offset: 0.0
Scale Factor: 1.0
Units: NoUnits
Data Source: L2
Title: >
Ids of the aerosol models that passed the threshold test, ordered by
increasing Root-Mean-Square error
Unique Field Definition: OMI-Specific
Description: >
The IDs of the aerosol models that passed the threshold test, ordered by
increasing root-mean-square error for each L2 candidate scene in each
L2G grid cell.

- Field Name:

AerosolOpticalThicknessMW
   Data Type: HE5T_NATIVE_INT16
   Dimensions:
nCandidate,nWavelnMW,YDim,XDim
   Minimum Value: -32766
   Maximum Value: 32768
   Missing Value: -32767
   Offset: 0.0
   Scale Factor: 0.001
   Units: NoUnits
   Data Source: L2
   Title: >
    Spectral Aerosol Optical Thickness for best fit
aerosol model derived
    with the Multi-Wavelength method, scaled by a
factor 1000
   Unique Field Definition: OMI-Specific
   Description: >
    The spectral aerosol optical thickness for best
fit aerosol model derived
    with the multi-wavelength method, scaled by a
factor 1000, for each L2
    candidate scene in each L2G grid cell.

 - Field Name:
AerosolOpticalThicknessMWPrecision
   Data Type: HE5T_NATIVE_INT16
   Dimensions: nCandidate,YDim,XDim
   Minimum Value: -32766
   Maximum Value: 32768
   Missing Value: -32767
   Offset: 0.0
   Scale Factor: 0.001
   Units: NoUnits
   Data Source: L2
   Title: >
    Precision of the spectral Aerosol Optical

Thickness at the reference
    wavelength for best fit aerosol model derived
with the Multi-Wavelength
    method, scaled by a factor 1000
   Unique Field Definition: OMI-Specific
   Description: >
    The precision of the spectral aerosol optical
thickness at the reference
    wavelength for best fit aerosol model derived
with the Multi-Wavelength
    method, scaled by a factor 1000, for each L2
candidate scene in each
    L2G grid cell.

 - Field Name:
AerosolOpticalThicknessPassedThresholdMean
   Data Type: HE5T_NATIVE_INT16
   Dimensions:
nCandidate,nWavelDiagnostic,YDim,XDim
   Minimum Value: -32766
   Maximum Value: 32768
   Missing Value: -32767
   Offset: 0.0
   Scale Factor: 0.001
   Units: NoUnits
   Data Source: L2
   Title: >
    Mean spectral Aerosol Optical Thickness of
aerosol models that passed the
    threshold, scaled by a factor 1000
   Unique Field Definition: OMI-Specific
   Description: >
    The mean spectral aerosol optical thickness of
aerosol models that passed
    the threshold, scaled by a factor 1000, for each
L2 candidate scene in
    each L2G grid cell.

```
 - Field Name:
AerosolOpticalThicknessPassedThresholdStd
   Data Type:                HE5T_NATIVE_INT16
   Dimensions:
nCandidate,nWavelDiagnostic,YDim,XDim
   Minimum Value:            -32766
   Maximum Value:            32768
   Missing Value:            -32767
   Offset:                   0.0
   Scale Factor:             0.001
   Units:                    NoUnits
   Data Source:              L2
   Title: >
    Standard deviation of the spectral Aerosol
Optical Thickness of aerosol
    models that passed the threshold, scaled by a
factor 1000
   Unique Field Definition:  OMI-Specific
   Description: >
    The standard deviation of the spectral aerosol
optical thickness of aerosol
    models that passed the threshold, scaled by a
factor 1000, for each L2
    candidate scene in each L2G grid cell.

 - Field Name:               CloudFlags
   Data Type:                HE5T_NATIVE_UINT8
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            0
   Maximum Value:            254
   Missing Value:            255
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    NoUnits
   Data Source:              L2
   Title:                    Cloud Quality Flags
```

```
   Unique Field Definition:  OMI-Specific
   Description: >
    The cloud quality flags for each L2 candidate
scene in each L2G grid cell.

    Bit 0  Cloud Clearing Missing Flag:
           Set if one or more cloud clearing steps
were skipped because
           necessary input data were missing or not
of sufficient quality.
    Bit 1  Cloud Clearing Error Flag:
           Set if one or more cloud clearing steps
resulted in error.
    Bit 2  Cloud Clearing Warning Flag:
           Set if one or more cloud clearing steps
produced warning.
    Bit 3  Cloud Fraction Test:
           Set if cloud fraction exceeds an OPF
threshold value.
    Bit 4  Aerosol Index Test:
           Set if UV aerosol index is less than an
OPF threshold value and if
           reflectance exceeds another OPF threshold
value.
    Bit 5  Pixel Homogeneity Test:
           Set if SmallPixelVarianceUV is larger than
an OPF thresold value or
           if SmallPixelVarianceVIS is larger than
another OPF threshold value.
    Bit 6  Reserved:
           Reserved for future use.
    Bit 7  Reserved:
           Reserved for future use.

   Field Name:                CloudPressure
   Data Type:                 HE5T_NATIVE_FLOAT
   Dimensions:                nCandidate,YDim,XDim
```

```
   Minimum Value:            0.0
   Maximum Value:            1200.0
   Missing Value:            -1.2676506e+30
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    hPa
   Data Source:              L2
   Title:                    Effective Cloud Pressure
   Unique Field Definition:  OMI-Specific
   Description: >
    The effective cloud pressure for each L2
candidate scene in each L2G grid
    cell.

 - Field Name:               EffectiveCloudFraction
   Data Type:                HE5T_NATIVE_FLOAT
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            0.0
   Maximum Value:            1.0
   Missing Value:            -1.2676506e+30
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    NoUnits
   Data Source:              L2
   Title:                    Effective cloud fraction
channel
   Unique Field Definition:  OMI-Specific
   Description: >
    The effective cloud fraction for each L2
candidate scene in each L2G grid
    cell.

 - Field Name:
InstrumentConfigurationId
   Data Type:                HE5T_NATIVE_UINT8
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            0
```

```
   Maximum Value:            254
   Missing Value:            255
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    NoUnits
   Data Source:              L2
   Title: >
    Unique ID for instrument settings for current
measurement
   Unique Field Definition:  OMI-Specific
   Description: >
    The instrument configuration ID for each L2
candidate scene in each L2G grid
    cell.

 - Field Name:               MeasurementQualityFlags
   Data Type:                HE5T_NATIVE_UINT8
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            0
   Maximum Value:            254
   Missing Value:            255
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    NoUnits
   Data Source:              L2
   Title:                    Quality Flags on
Measurement Level
   Unique Field Definition:  OMI-Specific
   Description: >
    The bit-level quality flags at measurement level
for each L2 candidate scene
    in each L2G grid cell.

    Bit 0  Measurement Missing Flag:
           Set if all Ground Pixels give Earth
Radiance Missing Flag.
    Bit 1  Measurement Error Flag:
```

Set if any of the L1B MeasurementQualityFlags bit 0, 1 or 3 are set for the Radiance or for the used Solar product.

Bit 2 Measurement Warning Flag:
Set if any of the L1B MeasurementQualityFlags bit 2, 4, 5, 8, 9 are set for the Radiance or for the used Solar product.

Bit 3 Rebinned Measurement Flag:
Set if L1B radiance MeasurmentQualityFlags bit 7 is set to 1.

Bit 4 SAA Flag:
Set if L1B MeasurmentQualityFlags bit 10 is set to 1 for Radiance or for used Solar product.

Bit 5 Spacecraft Maneuver Flag:
Set if L1B MeasurmentQualityFlags bit 11 is set to 1 for Radiance or for used Solar product.

Bit 6 Instrument Settings Error Flag:
Set if Earth and Solar InstrumentConfigurationIDs are not compatible.

Bit 7 Cloud Data Not Synchronized Flag:
Set if radiance and cloud data are not time synchronized.

- Field Name: NumberOfModelsPassedThreshold

Data Type:	HE5T_NATIVE_UINT8
Dimensions:	nCandidate,YDim,XDim
Minimum Value:	0
Maximum Value:	254
Missing Value:	255
Offset:	0.0
Scale Factor:	1.0
Units:	NoUnits

```
   Data Source:              L2
   Title: >
    Number of aerosol models that passed the
threshold test
   Unique Field Definition:  OMI-Specific
   Description: >
    The number of aerosol models that passed the
threshold test for each L2
    candidate scene in each L2G grid cell.

 - Field Name:               ProcessingQualityFlagsMW
   Data Type:                HE5T_NATIVE_UINT16
   Dimensions:               nCandidate,YDim,XDim
   Minimum Value:            0
   Maximum Value:            65534
   Missing Value:            65535
   Offset:                   0.0
   Scale Factor:             1.0
   Units:                    NoUnits
   Data Source:              L2
   Title: >
    Quality Flags on Pixel Level for the Multi-
Wavelength method
   Unique Field Definition:  OMI-Specific
   Description: >
    The quality flags on pixel level for the multi-
wavelength method for each
    L2 candidate scene in each L2G grid cell.

 - Field Name:
RootMeanSquareErrorOfFitPassedThreshold
   Data Type:                HE5T_NATIVE_INT16
   Dimensions:
nCandidate,nModels,YDim,XDim
   Minimum Value:            -32766
   Maximum Value:            32768
   Missing Value:            -32767
```

```
   Offset:                    0.0
   Scale Factor:              0.0001
   Units:                     NoUnits
   Data Source:               L2
   Title: >
    Root-Mean-Square error of the multi-wavelength
fit for aerosol models
    that passed the threshold ordered by increasing
RMS error, scaled by
    a factor 10000
   Unique Field Definition:  OMI-Specific
   Description: >
    The root-mean-square error of the multi-
wavelength fit for aerosol models
    that passed the threshold ordered by increasing
RMS error, scaled by a
    factor 10000, for each L2 candidate scene in each
L2G grid cell.

 - Field Name:              SingleScatteringAlbedoMW
   Data Type:               HE5T_NATIVE_INT16
   Dimensions:
nCandidate,nWavelnMW,YDim,XDim
   Minimum Value:           -32766
   Maximum Value:           32768
   Missing Value:           -32767
   Offset:                  0.0
   Scale Factor:            0.001
   Units:                   NoUnits
   Data Source:             L2
   Title: >
    Spectral Single Scattering Albedo for best fit
aerosol model derived
    with the Multi-Wavelength method, scaled by a
factor 1000
   Unique Field Definition:  OMI-Specific
   Description: >
```

    The spectral single scattering albedo for best fit aerosol model derived
    with the Multi-Wavelength method, scaled by a factor 1000 for each L2
    candidate scene in each L2G grid cell.

 - Field Name: SingleScatteringAlbedoMWPrecision
   Data Type: HE5T_NATIVE_INT16
   Dimensions: nCandidate,YDim,XDim
   Minimum Value: -32766
   Maximum Value: 32768
   Missing Value: -32767
   Offset: 0.0
   Scale Factor: 0.001
   Units: NoUnits
   Data Source: L2
   Title: >
    Precision of the spectral Single Scattering Albedo at the reference
    wavelength for best fit aerosol model derived with the Multi-Wavelength
    method, scaled by a factor 1000
   Unique Field Definition: OMI-Specific
   Description: >
    The precision of the spectral single scattering albedo at the reference
    wavelength for best fit aerosol model derived with the multi-wavelength
    method, scaled by a factor 1000, for each L2 candidate scene in each
    L2G grid cell.

 - Field Name: SingleScatteringAlbedoPassedThresholdMean
   Data Type: HE5T_NATIVE_INT16
   Dimensions:

nCandidate,nWavelDiagnostic,YDim,XDim
   Minimum Value: -32766
   Maximum Value: 32768
   Missing Value: -32767
   Offset: 0.0
   Scale Factor: 0.001
   Units: NoUnits
   Data Source: L2
   Title: >
    Mean spectral Single Scattering Albedo of aerosol models that passed the
    threshold, scaled by a factor 1000
   Unique Field Definition: OMI-Specific
   Description: >
    The mean spectral single scattering albedo of aerosol models that passed
    the threshold, scaled by a factor 1000, for each L2 candidate scene in
    each L2G grid cell.

 - Field Name: SingleScatteringAlbedoPassedThresholdStd
   Data Type: HE5T_NATIVE_INT16
   Dimensions: nCandidate,nWavelDiagnostic,YDim,XDim
   Minimum Value: -32766
   Maximum Value: 32768
   Missing Value: -32767
   Offset: 0.0
   Scale Factor: 0.001
   Units: NoUnits
   Data Source: L2
   Title: >
    Standard deviation of the spectral Single Scattering Albedo of aerosol
    models that passed the threshold, scaled by a factor 1000.

Unique Field Definition: OMI-Specific
Description: >
The standard deviation of the spectral single scattering albedo of aerosol
models that passed the threshold, scaled by a factor 1000, for each L2
candidate scene in each L2G grid cell.

- Field Name: TerrainPressure
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nCandidate,YDim,XDim
Minimum Value: 0.0
Maximum Value: 1200.0
Missing Value: -1.2676506e+30
Offset: 0.0
Scale Factor: 1.0
Units: hPa
Data Source: L2
Title: Pressure of the center of the ground pixel
Unique Field Definition: OMI-Specific
Description: >
The terrain pressure (in hPa) for each L2 candidate scene in each L2G grid
cell.

- Field Name: TerrainReflectivity
Data Type: HE5T_NATIVE_INT16
Dimensions: nCandidate,nWavelDiagnostic,YDim,XDim
Minimum Value: -32766
Maximum Value: 32768
Missing Value: -32767
Offset: 0.0
Scale Factor: 0.001
Units: NoUnits
Data Source: L2

Title: >
Reflectivity of the ground pixel, scaled by a factor 1000
Unique Field Definition: OMI-Specific
Description: >
The terrain reflectivity for each L2 candidate scene in each L2G grid cell.

- Field Name: UVAerosolIndex
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nCandidate,YDim,XDim
Minimum Value: -10.0
Maximum Value: 10.0
Missing Value: -1.2676506e+30
Offset: 0.0
Scale Factor: 1.0
Units: NoUnits
Data Source: L2
Title: UV Aerosol Index
Unique Field Definition: OMI-Specific
Description: >
The UV aerosol index for each L2 candidate scene in each L2G grid cell.

- Field Name: VISAerosolIndex
Data Type: HE5T_NATIVE_FLOAT
Dimensions: nCandidate,YDim,XDim
Minimum Value: -10.0
Maximum Value: 10.0
Missing Value: -1.2676506e+30
Offset: 0.0
Scale Factor: 1.0
Units: NoUnits
Data Source: L2
Title: VIS Aerosol Index
Unique Field Definition: OMI-Specific
Description: >

The visual aerosol index for each L2 candidate scene in each L2G grid cell.

- Field Name: XTrackQualityFlags
  Data Type: HE5T_NATIVE_UINT8
  Dimensions: nCandidate,YDim,XDim
  Minimum Value: 0
  Maximum Value: 254
  Missing Value: 255
  Offset: 0.0
  Scale Factor: 1.0
  Units: NoUnits
  Data Source: PGE
  Title: Across Track Quality Flags
  Unique Field Definition: OMI-Specific
  Description: >
    The cross-track quality flags assigned to each pixel in OMI L1B data for
    each L2 candidate scene in each L2G grid cell. Flags indicate detection
    of the OMI row anomaly and if the effect has been corrected.

    Bits 0 to 2 together indicate row anomaly status:
      0 - Not affected
      1 - Affected, Not corrected, do not use
      2 - Slightly affected, not corrected, use with caution
      3 - Affected, corrected, use with caution
      4 - Affected, corrected, use pixel
      5 - Not used
      6 - Not used
      7 - Error during anomaly detection processing
    Bit 3 - Reserved for future use.
    Bit 4 - Possibly affected by wavelength shift
    Bit 5 - Possibly affected by blockage

Bit 6 - Possibly affected by stray sunlight
Bit 7 - Possibly affected by stray earthshine

Core Metadata:

- Metadata Name: AssociatedInstrumentShortName
  Mandatory: T
  Data Type: VA20
  Number of Values: 1
  Valids: OMI
  Data Source: MCF
  Description: Actual is "OMI".

- Metadata Name: AssociatedPlatformShortName
  Mandatory: T
  Data Type: VA20
  Number of Values: 1
  Valids: Aura
  Data Source: MCF
  Description: Actual is "Aura".

- Metadata Name: AssociatedSensorShortName
  Mandatory: T
  Data Type: VA20
  Number of Values: 1
  Valids: CCD Ultra Violet,CCD Visible
  Data Source: MCF
  Description: Actual is "CCD Ultra Violet".

- Metadata Name: AutomaticQualityFlag
  Mandatory: T
  Data Type: VA20
  Number of Values: 1
  Valids: Passed,Suspect,Failed
  Data Source: PGE
  Description: Actual is "Failed".

- Metadata Name: AutomaticQualityFlagExplanation
  Mandatory: T
  Data Type: VA255
  Number of Values: 1
  Data Source: PGE
  Description: >
   Actual is "An automatic quality investigation has not yet been devised."

- Metadata Name: DayNightFlag
  Mandatory: T
  Data Type: VA5
  Number of Values: 1
  Valids: Day,Night,Both
  Data Source: MCF
  Description: Actual is "Day".

- Metadata Name: EastBoundingCoordinate
  Mandatory: T
  Data Type: LF
  Number of Values: 1
  Minimum Value: -180.0
  Maximum Value: 180.0
  Data Source: PGE
  Description: >
   The terrestrial longitude (in degrees) of the easternmost data in the L2G
   granule, which is typically 180.0 degrees.

- Metadata Name: EquatorCrossingDate
  Mandatory: T
  Data Type: D
  Number of Values: 1,16
  Data Source: L2
  Description: >
   The date of the ascending equator crossing for each L2 input granule.

```
 - Metadata Name:     EquatorCrossingLongitude
   Mandatory:         T
   Data Type:         LF
   Number of Values:  1,16
   Minimum Value:     -180.0
   Maximum Value:     180.0
   Data Source:       L2
   Description: >
    The terrestrial longitude (in degrees) of the
ascending equator crossing for
    each L2 input granule.

 - Metadata Name:     EquatorCrossingTime
   Mandatory:         T
   Data Type:         T
   Number of Values:  1,16
   Data Source:       L2
   Description: >
    The time of the ascending equator crossing for
each L2 input granule.

 - Metadata Name:     InputPointer
   Mandatory:         T
   Data Type:         VA255
   Number of Values:  1,16
   Data Source:       PCF
   Description: >
    A list of the L2 input granules.  Example is
    ("OMI-Aura_L2-OMAERO_2005m0829t2333-
o05981_v003_2007m0629t150701.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t0112-
o05982_v003_2007m0629t152233.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t0251-
o05983_v003_2007m0629t153533.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t0430-
o05984_v003_2007m0629t154940.he5",
```

```
     "OMI-Aura_L2-OMAERO_2005m0830t0609-
o05985_v003_2007m0629t160251.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t0748-
o05986_v003_2007m0629t161305.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t0927-
o05987_v003_2007m0629t162319.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t1105-
o05988_v003_2007m0629t163937.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t1244-
o05989_v003_2007m0629t165459.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t1423-
o05990_v003_2007m0629t170847.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t1602-
o05991_v003_2007m0629t172337.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t1741-
o05992_v003_2007m0629t173827.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t1920-
o05993_v003_2007m0629t175048.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t2059-
o05994_v003_2007m0629t180222.he5",
     "OMI-Aura_L2-OMAERO_2005m0830t2238-
o05995_v003_2007m0629t181841.he5")

 - Metadata Name:     LocalGranuleID
   Mandatory:         T
   Data Type:         VA80
   Number of Values:  1
   Data Source:       PGE
   Description: >
    Example is "OMI-Aura_L2G-
OMAEROG_2005d242_v003-2008m0123t012345.he5"
    (see Appendix E of Reference 4).

 - Metadata Name:     LocalityValue
   Mandatory:         T
   Data Type:         VA20
   Number of Values:  1
```

```
   Data Source:       MCF
   Description:       Actual is "Global".

 - Metadata Name:     LOCALVERSIONID
   Mandatory:         T
   Data Type:         VA60
   Number of Values:  1
   Data Source:       PCF
   Description: >
    MD5 fingerprint of the HDF product file.  Example
valids are
    "RFC1321 MD5 = not yet calculated" and "RFC1321
MD5 = [0-9,a-f]{32}".

 - Metadata Name:     NorthBoundingCoordinate
   Mandatory:         T
   Data Type:         LF
   Number of Values:  1
   Minimum Value:     -90.0
   Maximum Value:     90.0
   Data Source:       PGE
   Description: >
    The terrestrial latitude (in degrees) of the
northernmost data in the L2G
    granule, which typically lies in the range from
65.0 to 90.0 degrees.

 - Metadata Name:     OperationalQualityFlag
   Mandatory:         T
   Data Type:         VA20
   Number of Values:  1
   Valids: >
    Passed,Failed,Being Investigated,Not
Investigated,Inferred Passed,
    Inferred Failed,Suspect
   Data Source:       PGE
   Description: >
```

```
    Actual is "Passed".

 - Metadata Name:
OperationalQualityFlagExplanation
   Mandatory:          T
   Data Type:          VA255
   Number of Values:   1
   Data Source:        PGE
   Description: >
    Actual is "This granule passed operational tests
that were administered
    by the OMI SIPS.  QA metadata was extracted and
the file was successfully
    read using standard HDF-EOS utilities.".

 - Metadata Name:     OrbitNumber
   Mandatory:          T
   Data Type:          I
   Number of Values:   1,16
   Minimum Value:      1
   Maximum Value:      999999
   Data Source:        L2
   Description:        The OMI orbit number for each
L2 input granule.

 - Metadata Name:     ParameterName
   Mandatory:          T
   Data Type:          VA40
   Number of Values:   1
   Valids:             Aerosol
   Data Source:        PGE
   Description: >
    The measured science parameter expressed in the
L2G granule.  Actual is
    "Aerosol".

 - Metadata Name:     PGEVERSION
```

```
   Mandatory:          T
   Data Type:          VA10
   Number of Values:   1
   Data Source:        PCF
   Description:        Example is "0.9.36.2" (see
Appendix K of Reference 4).

 - Metadata Name:      ProductionDateTime
   Mandatory:          T
   Data Type:          DT
   Number of Values:   1
   Data Source:        TK
   Description:        The date and time of the Level
2G processing.

 - Metadata Name:      QAPercentOutOfBoundsData
   Mandatory:          T
   Data Type:          I
   Number of Values:   1
   Minimum Value:      0
   Maximum Value:      100
   Data Source:        PGE
   Description: >
    An average for the entire L2G granule of the
percent of data that are out
    of bounds.

 - Metadata Name:      QAPercentMissingData
   Mandatory:          T
   Data Type:          I
   Number of Values:   1
   Minimum Value:      0
   Maximum Value:      100
   Data Source:        PGE
   Description: >
    An average for the entire L2G granule of the
percent of missing Level 1B
```

calibrated radiance data.

- Metadata Name: RangeBeginningDate
  Mandatory: T
  Data Type: D
  Number of Values: 1
  Data Source: PGE
  Description: The year, month and day when the L2G granule begins.

- Metadata Name: RangeBeginningTime
  Mandatory: T
  Data Type: T
  Number of Values: 1
  Data Source: PGE
  Description: >
    The hour, minute, second and fraction of a second when the L2G granule
    begins.

- Metadata Name: RangeEndingDate
  Mandatory: T
  Data Type: D
  Number of Values: 1
  Data Source: PGE
  Description: The year, month and day when the L2G granule ends.

- Metadata Name: RangeEndingTime
  Mandatory: T
  Data Type: T
  Number of Values: 1
  Data Source: PGE
  Description: >
    The hour, minute, second and fraction of a second when the L2G granule ends.

```
 - Metadata Name:     REPROCESSINGACTUAL
   Mandatory:         T
   Data Type:         VA20
   Number of Values:  1
   Valids: >
    processed 1 time,processed 2 times,processed 3
times,processed 4 times
   Data Source:       PCF
   Description: >
    An indication of what reprocessing has been
performed on the L2G granule.

 - Metadata Name:     ReprocessingPlanned
   Mandatory:         T
   Data Type:         VA40
   Number of Values:  1
   Valids: >
    no further update anticipated,further update is
anticipated,
    further update anticipated using enhanced PGE
   Data Source:       DP
   Description:       Actual is "further update is
anticipated".

 - Metadata Name:     ScienceQualityFlag
   Mandatory:         T
   Data Type:         VA20
   Number of Values:  1
   Valids: >
    Passed,Failed,Being Investigated,Not
Investigated,Inferred Passed,
    Inferred Failed,Suspect
   Data Source:       DP
   Description:       Actual is "Not Investigated".

 - Metadata Name:     ScienceQualityFlagExplanation
   Mandatory:         T
```

```
   Data Type:          VA255
   Number of Values:   1
   Data Source:        DP
   Description: >
    Actual is "An updated science quality flag and
explanation is put in the
    product .met file when a granule has been
evaluated.  The flag value in
    this file, Not Investigated, is an automatic
default that is put into
    every granule during production.".

 - Metadata Name:      ShortName
   Mandatory:          T
   Data Type:          VA8
   Number of Values:   1
   Valids:             OMAEROG
   Data Source:        MCF
   Description:        Actual is "OMAEROG".

 - Metadata Name:      SizeMBECSDataGranule
   Mandatory:          F
   Data Type:          LF
   Number of Values:   1
   Minimum Value:      0.0
   Maximum Value:      10000.0
   Data Source:        DSS
   Description: >
    The volume of data (in MB) contained in the L2G
granule (this Metadata will
    not appear in the L2G granule).

 - Metadata Name:      SouthBoundingCoordinate
   Mandatory:          T
   Data Type:          LF
   Number of Values:   1
   Minimum Value:      -90.0
```

```
   Maximum Value:     90.0
   Data Source:       PGE
   Description: >
    The terrestrial latitude (in degrees) of the
southernmost data in the L2G
    granule, which typically lies in the range from
-90.0 to -65.0 degrees.

 - Metadata Name:     VERSIONID
   Mandatory:         T
   Data Type:         SI
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     999
   Data Source:       PCF
   Description:       Example is 2.

 - Metadata Name:     WestBoundingCoordinate
   Mandatory:         T
   Data Type:         LF
   Number of Values:  1
   Minimum Value:     -180.0
   Maximum Value:     180.0
   Data Source:       PGE
   Description: >
    The terrestrial longitude (in degrees) of the
westernmost data in the L2G
    granule, which is typically -180.0 degrees.

Product Specific Attributes:

 - Metadata Name:     ExpeditedData
   Mandatory:         T
   Data Type:         VA10
   Number of Values:  1
   Valids:            TRUE,FALSE
   Data Source:       PGE
```

Description: The indicator for expedited Level 0 data.

- Metadata Name: ExposureTimes
  Mandatory: T
  Data Type: F
  Number of Values: 1,256
  Minimum Value: 0.0
  Maximum Value: 2000.0
  Data Source: PGE
  Description: >
  An array containing the exposure times (in seconds) used for the
  measurements.

- Metadata Name: MasterClockPeriods
  Mandatory: T
  Data Type: F
  Number of Values: 1,128
  Minimum Value: 0.0
  Maximum Value: 10.0
  Data Source: PGE
  Description: >
  An array containing the master clock periods (in seconds) used for the
  measurements.

- Metadata Name: NrMeasurements
  Mandatory: T
  Data Type: I
  Number of Values: 1
  Minimum Value: 0
  Maximum Value: 30000
  Data Source: PGE
  Description: >
  The number of measurements used to create the L2G granule.

```
 - Metadata Name:     NrSpatialZoom
   Mandatory:         T
   Data Type:         I
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     0
   Data Source:       PGE
   Description: >
    The number of measurements in spatial zoom mode.
Actual is 0, because
    zoom measurements are excluded from the L2G
granule.

 - Metadata Name:     NrSpectralZoom
   Mandatory:         T
   Data Type:         I
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     0
   Data Source:       PGE
   Description: >
    The number of measurements in spectral zoom mode.
Actual is 0, because
    zoom measurements are excluded from the L2G
granule.

 - Metadata Name:     NrZoom
   Mandatory:         T
   Data Type:         I
   Number of Values:  1
   Minimum Value:     0
   Maximum Value:     0
   Data Source:       PGE
   Description: >
    The number of measurements in zoom modes.  Actual
is 0, because zoom
```

measurements are excluded from the L2G granule.

- Metadata Name: SolarEclipse
  Mandatory: T
  Data Type: VA10
  Number of Values: 1
  Valids: TRUE,FALSE
  Data Source: PGE
  Description: >
  The indicator that during part of the measurements a solar eclipse occurred.

- Metadata Name: SouthAtlanticAnomalyCrossing
  Mandatory: T
  Data Type: VA10
  Number of Values: 1
  Valids: TRUE,FALSE
  Data Source: PGE
  Description: >
  The indicator that during part of the measurements the spacecraft was
  in the South Atlantic Anomaly.

- Metadata Name: SpacecraftManeuverFlag
  Mandatory: T
  Data Type: VA10
  Number of Values: 1
  Valids: TRUE,FALSE,UNKNOWN
  Data Source: PGE
  Description: >
  The indicator that during part of the measurements the spacecraft was
  performing a maneuver.

Archived Metadata:

- Metadata Name: ESDTDescriptorRevision

```
   Mandatory:          T
   Data Type:          VA10
   Number of Values:   1
   Data Source:        MCF
   Description: >
    The version of the ESDT descriptor file as
determined by ECS.

 - Metadata Name:      LongName
   Mandatory:          T
   Data Type:          VA80
   Number of Values:   1
   Valids: >
    OMI/Aura Multi-wavelength Aerosol Optical Depth
and Single Scattering Albedo Daily L2 Global
0.25x0.25 deg Lat/Lon Grid
   Data Source:        MCF
   Description: >
    Actual is
    "OMI/Aura Multi-wavelength Aerosol Optical Depth
and Single Scattering Albedo Daily L2 Global
0.25x0.25 deg Lat/Lon Grid"

References: >

  1. "OMAERO README File"
     (2009 April 6)
     (http://disc.sci.gsfc.nasa.gov/Aura/data-
holdings/OMI/omaero_v003.shtml)

  2. "Definition of OMI Grids for Level 3 and Level 4
Data Products"
     (OMI-Grids_L3L4, SD-OMIE-KNMI-443, 25 January
2005)

  3. "A File Format for Satellite Atmospheric
Chemistry Data"
```

(OMI-AURA-DATA-GUIDE, ESDS-RFC-009, May 2008)

4. "OMI Science Software Delivery Guide for Version 0.9"
(OMI-SSDG-0.9.10, Version 0.9.10, 22 June 2005)

5. "OMI GDPS Input/Output Data Specification (IODS) Volume 2"
(OMI-GDPS-IODS-2, SD-OMIE-7200-DS-467, 8 November 2004)

6. "OMAEROG ECS Metadata Requirements"
(OMI-OMAEROG_Metadata_RD, Version 0.9.30, In Preparation)

7. "Release 6A Implementation Earth Science Data Model for the ECS Project"
(420-TP-022-002, June 2001)
(http://edhs1.gsfc.nasa.gov/waisdata/rel6/html/tp4202202.html and
http://edhs1.gsfc.nasa.gov/waisdata/rel6/html/tp42022_adds.html)